

MARKED-UP CLAIMS

1 (currently amended): A semiconductor manufacturing apparatus for processing a substrate surface, said apparatus comprising:

a vacuum vessel having a vacuum vessel plate;

5 a substrate stage fixedly provided on said vacuum vessel plate, said substrate stage thereby having a ~~substantially~~ constant vertical position relative to said vacuum vessel plate;

a cylinder installed surrounding said substrate stage, a gap existing between said cylinder and said vacuum vessel plate, said
10 gap being made variable by lifting/lowering said cylinder, said cylinder having a cylinder interior space and a cylinder exterior space associated therewith, said cylinder interior space defining a processing chamber for processing said substrate surface, said cylinder exterior space including a transport chamber for
15 transferring said substrate;

at least one cylinder lifting/lowering mechanism being operatively associated with said cylinder;

a substrate conveyer mechanism provided with said transport chamber, said substrate conveyer mechanism for transferring said
20 substrate between said processing chamber and said transport chamber through said gap;

said processing chamber being provided with a processing chamber gas inlet and a processing chamber gas outlet; and

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25 said transport chamber being provided with a transport chamber gas inlet and a transport chamber gas outlet.

2 (currently amended): A semiconductor manufacturing apparatus for processing a substrate surface, the apparatus composed of a vacuum vessel with a top and bottom plate, said apparatus comprising:

5 a plurality of substrate stages fixedly provided on said vacuum vessel bottom plate, each of said substrate stages thereby having a ~~substantially~~ constant vertical position relative to said vacuum vessel plate;

10 a plurality of cylinders provided respectively with an O ring connected to said bottom plate through bellows so as to surround said substrate stage, said cylinders forming a gap with said vacuum vessel top plate, a gap between said cylinder and said vacuum vessel top plate being made variable by lifting/lowering said cylinder, and at a position where said gap
15 becomes minimum, a plurality of cylinder lifting/lowering mechanisms operatively associated with said cylinder being provided, in order to hermetically separate an interior space inside said cylinder from an exterior space outside thereof, said interior space forming a processing chamber for processing said
20 substrate surface, the exterior space defining a transport chamber for transferring said substrate;

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said transport chamber being provided with a substrate conveyer mechanism for transferring said substrate between said processing chamber and said transport chamber through said gap;

25 said processing chamber being provided with a processing chamber gas inlet and a processing chamber gas outlet; and

said transport chamber being provided with a transport chamber gas inlet and a transport chamber gas outlet.

3 (previously amended): The semiconductor manufacturing apparatus according to Claim 1, wherein said vacuum vessel can be divided into a part including said processing chamber and a part having said substrate transport mechanism.

4 (previously amended): The semiconductor manufacturing apparatus according to Claim 1, further comprising a plasma generation mechanism for generating plasma in said processing chamber.

5 (previously amended): The semiconductor manufacturing apparatus according to Claim 4, wherein said plasma generation mechanism radiates microwave energy through a slot antenna.

6 (original): The semiconductor manufacturing apparatus according to Claim 4, wherein a plurality of cylindrical permanent magnets are disposed substantially on the circumference surrounding the substrate in the atmosphere outside said vacuum vessel, in order to impress magnetic field around said substrate.

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7 ^{PREVIOUSLY AMENDED} (original): The semiconductor manufacturing apparatus according to any one of Claims ² ~~1 to 6~~ wherein said substrate stage is provided with a means for impressing direct current or alternating current power. ~~of Claim 5~~

8 (previously amended): The semiconductor manufacturing apparatus according to Claim 2, wherein said vacuum vessel can be divided into a part including said processing chamber and a part having said substrate transport mechanism.

9 (previously amended): The semiconductor manufacturing apparatus according to Claim 2 comprising a plasma generation mechanism for generating plasma in said processing chamber.

10 (previously amended): The semiconductor manufacturing apparatus according to Claim 3 comprising a plasma generation mechanism for generating plasma in said processing chamber. 11. The semiconductor manufacturing apparatus according to Claim 10, wherein said plasma generation mechanism radiates microwave energy through a slot antenna.

11 (previously amended): The semiconductor manufacturing apparatus according to Claim 10, wherein said plasma generation mechanism radiates microwave energy through a slot antenna.